

NOTES ON A THIRD COLLECTION OF MARINE SHELLS FROM  
THE ANDAMAN ISLANDS, WITH DESCRIPTIONS OF THREE  
NEW SPECIES OF *MITRA*.

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F.Z.S., etc.

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SINCE the appearance of our former papers on this subject,<sup>1</sup> we have heard with the greatest regret of the sudden death (in April or May, 1898) of Mr. G. H. Booley, of Port Blair, to whom we have been indebted for the carefully selected examples that form the foundation of this and our preceding contributions towards a Molluscan Fauna of the Andamans.

Had he lived, it was his intention to forward certain generic and specific forms at one special time, and thus, as much as possible, keep to one Order till worked out. In two or three years we should in this way have been able to give a very full geographical summary of the marine molluscan fauna of these prolific islands. Imperfect, therefore, though the researches are now, unfortunately, compelled to remain, there can be no doubt that they will prove of some service to the future malacological geographer, who would essay a complete catalogue of the Andamanese fauna.

In the present paper, no less than three new species of *Mitra* are added to our lists, and two marked varieties of known species of *Nassa* and *Natica* respectively have been thought worthy of differentiation and figures.

As before, species that have been recorded by Mr. Smith are distinguished by an asterisk.

1. *PLEUROTOMA VARIEGATA*, Kien. Allied to *P. tigrina*, Lam., already recorded from these islands; but less acutely keeled, and with wider canal. Reported from Japan, the East Indies, and Ceylon, but not very abundant anywhere.

2. *AQUILLUS* [= *TRITON*] *PILEARIS*, L. Fine examples. An abundant Eastern species.

3. *AQUILLUS GALLINAGO*, Reeve. Also widely distributed, from the Philippines south-westward.

4. *NASSA* (*NIOTHA*) *GEMMULATA*, Lam. Large specimens, typical. Its range also extends from the Philippines both south-westward and south-eastward.

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<sup>1</sup> Proc. Malac. Soc., vol. ii, p. 164, and vol. iii, p. 35.

5. *NASSA* (*ALECTRION*) *PAPILLOSA*, L. The largest of the genus, connected with other, smoother, species through *N. seminodosa*, A. Ad. Distributed widely throughout the Eastern tropics.

6. \**NASSA* (*ALECTRION*) *BIFARIA*, Baird. Considered by Tryon (Man. Conch., ser. I, vol. iv, p. 28) to be a "stumpy variety" of *N. hirta*, an abundant East Indian and Polynesian species.

7 *NASSA* (*HIMA*) *CRIBRARIA*, Marrat. A prettily painted *Nassa*, white, zoned with fulvous-brown. Three examples, exactly agreeing with specimens before us, authenticated by Mr. Marrat. Allied to *N. concinna*, Dunker, but smaller. We should not be inclined to follow Tryon (Man. Conch., ser. I, vol. iv, p. 51) in considering it a variety of *N. sinusigera*, Ad.

8. *NASSA* (*PHRONTIS*) *ZAIENSIS*, Sby. Proc. Malac. Soc., vol. i, p. 160.  
Var. *ANDAMANICA*, nov. Fig. IV (p. 222).

*Nassa ovata*, solida, stramineo-ochracea, apud apicem acuminata, anfractibus 8, longitudinaliter costatis, costis papillois, spiralter lirato-sulcatis, papillis obtusis, parum nitentibus, anfractu ultimo juxta suturam papilloso, infra profundi spiralter sulcoso, deinde longitudinaliter costato, costis papillois, ut supra, apertura ovato-rotunda, nigro-fasciata, canali brevi, labro politissimo, extus trimaculato, maculis fusco-nigris, intus denticulato, columella recta, paullum plicata. Long. 18, lat. 10 mm.

We have given a full description of this shell, at present deemed a variety, since it is not improbable that in time to come, when extensive suites, in various stages of growth, of both this and *N. Zailensis*, Sby., have been gathered, the new form may prove worthy of specific rank.

The examples before us are of a thickened fusiform shell, spire much attenuate towards the apex, upper whorls thickly ribbed, and these ribs thrice sulcate, transversely, thus appearing gemmuliferous, the last whorl is longitudinally ribbed, and obscurely spirally sulcate, outer lip shining, very polished, enamelled callosity extending over the columellar area to the sutures, not very thick, but white and much glazed, the outer lip possessing, as in the type (*Zailensis*), two or three black or fuscous bands, giving a very distinctive appearance. Superficially it resembles *N. venusta*, Dunker, var.

9. *NASSA* (*ZEUXIS*) *CANALICULATA*, Lam. One most magnificent specimen, much larger than usual, and with the outer lip in very perfect condition, which we have placed in the National Collection. It also occurs in the Pacific from the Philippines to Fiji.

10. *NASSA* (*ACICULINA*) *MACULATA*, A. Ad. Perhaps this would be better included in *Amycla*, H. & A. Ad. The type came from the Philippine Islands.

11. *ENGINA ELEGANS*, Dunker, 1845 (= *Ricinula pulchra*, Reeve, 1846). Reeve probably altered the trivial name of this species on account of the *Ricinula elegans*, Brod & Sby. (Zool. Journ., iv, p. 376). This latter species, however, still remaining in *Sistrum*, it no longer

affects the question of nomenclature under *Engina*. There has been more confusion as to the synonymy and arrangement of this very beautiful and distinct mollusc than one could have supposed possible. Reeve in 1846 described a *Buccinum pulchrum* (Conch. Icon., fig. 80) from the Gallapagos Isles. This has been, unwarrantably, mistaken for a western representative of this eastern species, and in consequence the erroneous idea arose, of a shell possessing a cosmopolitan range in the Tropics of both hemispheres. The *Buccinum pulchrum*, Reeve, which is perhaps a *Sistrum*, or, more probably, an *Engina*, is of quite special configuration, and perfectly distinct from *E. elegans*, Dkr. The Cumingian type of the latter species came from Capul Island, Philippines. From the Andamans we have only seen the white-mouthed variety, in which the body of the shell is of a pale straw colour.

12. *SISTRUM RICINUS*, L. (= *Ricinula arachnoidea*, Lam.). This species, represented in the collection by fine typical specimens, is extensively distributed throughout the East Indies.

13. *OLIVA EMICATOR*, Meusch. Better known by the later name of *O. guttata*, Lam. A variable species, very widely diffused throughout the East.

14. *LATIRUS (PERISTERIA) NASSATULUS*, Lam. Brilliantly coloured and quite typical. Ranges northward to the Philippines, and southward to Ceylon.

15. *MITRA RUBIGINOSA*, Reeve. One example. Recorded from Ticao Island.

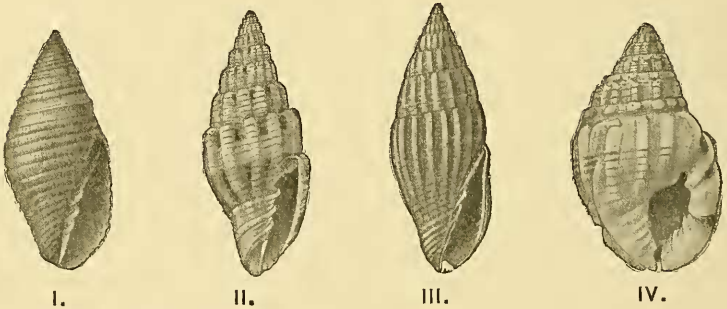


FIG. I. *Mitra Buryi*, n.sp.  
 ,, II. — *dilectissima*, n.sp.  
 ,, III. — *Georgii*, n.sp.  
 ,, IV. *Nassa Zailensis*, Sby., var. *Andamanica*, n.var.

16. *MITRA (CHRYSAME) BURYI*, n.sp. Fig. I.

*Mitra* testa ovata-oblonga, solida, crassiuscula, apice obtuso et sæpius eroso, anfractibus 7-8, nigro-brunneis, parum nitentibus, arcte spiraliter rotundi-liratis, liris duabus infra, juxta suturas, conspicuis et paulum acutis, cæteris apud medium obtusioribus, sed ad basim magis acutis

et paullulum excavatis, in uno specimine liris ultimum apud anfractum plus minus obliteratis, apertura angusta, oblonga, labro crassiusculo, intus nitente, brunneo, crenulato, columella triplicata. Long. 15, lat. 8 mm.

Shell ovate-oblong, thick, with obtuse and very frequently eroded apex, whorls seven to eight, not very shining, blackish-brown, solid, closely spirally roundly lirate, the two liræ contiguous to and just below the sutures are more conspicuous and acute, the remainder, towards the centre of the last whorl, are more obtuse and often obscure, those at the base are, again, clearer and excavately acute. In one specimen the liræ on the last whorl are not well defined. The mouth is oblong, narrow; outer lip thickened, crenulate within, brownish, shining, columella thrice-plaited.

Allied to *M. pediculus*, Lam., *M. rotundilirata*, Reeve, *M. tabanula*, Lam., and *M. Caledonica*, Petit, all four being considered by Tryon (Man. Conch., ser. 1, vol. iv, p. 146) to be forms of one species, but, we think, on insufficient data. From all of them it differs in the ovate-oblong shape, the character of the revolving liræ, and the peculiarity of outer lip. We have much pleasure in connecting with this species the name of our friend Mr. Herbert Bury.

17. MITRA (CHRYSAME) NANA, Reeve. A few examples. We consider this species to be more nearly allied to *M. crassa*, Swm., than to *M. aurantia*, Gmel., but it is difficult to draw a hard and fast line.

18. MITRA (CHRYSAME) PROCISSA, Reeve. A large form of a handsome *Chrysame*, which we have received not uncommonly from Mauritius.

19. MITRA (CHRYSAME) TIARELLA, A. Ad. Common throughout the East. We have especially fine examples from Lifu, New Caledonia (Hadfield). Tryon (Man. Conch., ser. 1, vol. iv, p. 149) considers this to be "only a small form of *M. coronata*, Lam.," but we think it quite distinct, and never have any difficulty in recognizing it, nor have we ever noted any intermediate forms.

20. MITRA (STRIGATELLA) PAUPERCULA, Lam., var.? ZEBRA, Lam. Some confusion exists between this species and *M. virgata*, Reeve; and, to make matters worse, *M. zebra*, Lam., having been considered the variety which linked them together, Garrett described a new species under the name of *M. zebra* (Journ. Conch., vol. iii, 1880, p. 35), which, from the description, no figure being given, most probably comes into the synonymy of this species.

21. MITRA (STRIGATELLA) AMPHORELLA, Lam. Perhaps, as suggested by Tryon (Man. Conch., ser. 1, vol. iv, p. 155) a variety of *M. scutulata*, Lam., but, if so, it is a very constant form, and at present our idea is to keep it distinct. Both the style of its coloration and its form are peculiar, and the like is the case with *M. decurtata*, Reeve, which Tryon (loc. cit.) also merges in *M. scutulata* with other forms, in rather a wholesale manner. *M. amphorella* occurs commonly in the Philippines, and ranges through the Pacific. Our examples are fine, varying from 23 to 35 mm. in length.

22. MITRA (STRIGATELLA) LITTERATA, Lam. Exceedingly abundant, but not in much variety. Very widely distributed throughout the Eastern tropics.

23. MITRA (ZIERLIANA) ROBUSTA, Reeve. A few, well-marked and characteristic specimens. We should hardly, like Tryon (Man. Conch., ser. I, vol. iv, p. 157) rank this with *M. Woldemarii*, Kiener, and *M. solidula*, Reeve, as a variety of the much rarer and curiously formed *M. Ziervogeliana*, Gmelin. At all events our experience is that we have never seen intermediate forms. *M. robusta* is more fusiform than the last-named species, its sculpture finer, and longitudinal liræ more frequent, outer lip not so effuse nor incassate, columella with plicæ far less strongly marked. *M. Woldemarii*, Kiener, a more abundant form, has the outer lip less developed than *M. robusta*, and the surface of its whorls nearly smooth. The shell is not infrequent throughout the Pacific, and its occurrence in the Andaman Islands shows a northern extension of range that is of great interest.

24. MITRA (TURRICULA) REGINA, Sby. One remarkably fine example of what is rightly named the Queen of Mitridæ. We have seen examples from the Moluccas and Philippines.

25. MITRA (TURRICULA) MELONGENA, Lam. Distribution much the same as the last.

26. MITRA (TURRICULA) GRUNERI, Reeve. An extremely distinct species, and one of the best defined of the smaller forms of *Turricula*. We have seen it from the Philippines, collected by the late Mr. Hugh Cuming, and have also met with examples from the Pacific islands.

27. MITRA (COSTELLARIA) CRUENTATA, Reeve. A subulate form, not typical, of which a considerable series came to hand. Widely distributed in the Eastern tropics.

28. MITRA (COSTELLARIA) DILECTISSIMA, n.sp. Fig. II (p. 222).

Mitra testa fusiformi, albida, spira versus apicem attenuata, solida, gradata, anfractibus 9-10, longitudinaliter undique costatis, costis crassis, lævibus, nitidis, interstitiis transversim multisulcatis, infra, juxta suturas, ochro-castaneo maculatis, ultimo anfractu versus medium albo-zonato, zona tenuissima, et usque ad basim castaneo, suffuso, apertura angusta, labro simplici, columella recta, quadriplicata. Long. 18, lat. 7 mm.

Beautiful both in form and coloration. The nearest approach would appear to be *M. discoloria*, Reeve, from Fiji, New Caledonia (Hadfield), and Solomon Isles (Brazier). This species is usually classed as a *Pusia*, a section the main characteristics of which are an ovate outline and curt contour of form. Our species differs entirely in its lengthened attenuate whorls, and in a peculiarity of coloration, which we have described above. To recapitulate, the shell is fusiform, white, spire tapering towards the apex, whorls gradate, impressed at the sutures, solid, nine or ten in number, longitudinally costate, the ribs being thick, shining, whitish, smooth, with interstitial transverse deep sulcation. Painted with chestnut-ochre spotting at the interstices, just

below the sutures, the lower part of the upper whorls being plain, the last whorl has a white band towards the middle, the chestnut-ochre suffusion extending thence over the base, which is attenuate. Aperture narrow, oblong, outer lip simple, columella straight, four-plaited.

29. MITRA (COSTELLARIA) GEORGII, n.sp. Fig. III (p. 222).

Mitra testa fusiformi, nigra, apice acutissimo, anfractibus 11, ad suturas paullum impressis, longitudinaliter arcte costatis, costis rectis, lævibus, nitidis, interstitiis spiraliter sulculosis, interdum evanidis, colore omnino nigro, zona angusta albida superiores apud anfractus infra medium, ultimo anfractu centraliter accincta, apertura oblonga, intus spiraliter striata, labro recto, nitido, nigro, columella triplicata. Long. 17–20, lat. 6–9 mm.

Five examples of a fusiform *Costellaria*, with extremely acuminate apex, rather solid, hardly shining, whorls eleven, slightly impressed at the sutures, and longitudinally, regularly and closely, ribbed, the ribs straight, smooth, rather shining, interstices spirally grooved, in some specimens obsolete. The colour is entirely black, relieved by a very narrow white band, which in the upper whorls is situate below the centre, and in the last whorl at the periphery; aperture oblong, outer lip rather straight, shining, black or blackish-brown; columella having three plaits; lip internally striate near the aperture.

*M. (Costellaria) armillata*, Reeve, is allied to this, but of totally different form. We have carefully compared it with the whole of the variable '*Cruentata*' section, and do not doubt its distinctness.

Since the name *Mitra Booleyi* has been employed by Wood-Mason, though we have failed to trace his description of the species, we give to this interesting Andamanese form the Christian name of the late Mr. G. H. Booley.

30. MITRA (COSTELLARIA) LAYARDI, A. Ad. Nearly allied to *M. crebrilirata*, Reeve: it ranges from Ceylon to the Philippines.

31. MITRA (COSTELLARIA) SEMIFASCIATA, Lam. A well-marked form, which is distributed across the Arabian Sea, and Indian Ocean, to the Polynesian Islands.

32. MITRA (COSTELLARIA) MUCRONATA, SwN. The distribution of this variable shell is the same as the last. We think Tryon (Man. Conch., ser. I, vol. iv, p. 174) errs in sinking several well-marked species as mere varieties of this one; such, for instance, as *M. nodilirata*, A. Ad.

33. MITRA (COSTELLARIA) SPICATA, Reeve. A rare species, admirably figured by Sowerby (Thes. Conch., pl. xii, fig. 190; pl. xix, fig. 383). Described as from the Moluccas. We should consider this distinct from *M. fusiformis*, Kien., the smooth and shining lower whorl being characteristic.

34. MITRA (PUSIA) AFFINIS, Reeve. Only one, but that a beautiful example, came in the collection. It is a Polynesian species, and nearly akin to *M. aureolata*, SwN.

35. *NATICA AREOLATA*, Récluz. Distinguished by its conspicuous rounded callus. It occurs from Australia to the Moluccas, and has lately been sent from the Arabian Sea by Mr. F. W. Townsend, thus considerably extending its range.



FIG. V. *Natica strongyla*, Melv., var. *Andamanica*, n.var.  
 ,, VI. ——— Melv., typical form.

36. *NATICA STRONGYLA*, Melv., var. *ANDAMANICA*, n. Fig. V.

*Natica* testa a typo differente solum apud umbilicum, callo magis prominulo, et, colore, pallide stramineo, maculis brunneis transversis omnino absentibus. Long. 13, lat. 12 mm.

The type, described recently from the Townsend collections,<sup>1</sup> came from the Persian Gulf, and was not so large or fully grown as subsequent specimens (Fig. VI) received this year from the same locality. The accompanying figure (Fig. V) will show at a glance the slight differences as expressed above between the type and the Andamanese variety. The beautifully multisulcate operculum is the same in both, and alone would separate the species from any form of the protean *N. Marochiensis*, Gmel.

37. \* *TEREBRA EXIGUA*, Desh. A fine example 40 mm. long. This rare *Terebra* occurs sparingly in the Andaman Isles, but is reported also from the east coast of Australia.

38. *CERITHIOPSIS HINDUORUM*, Melv. Described from Karachi (F. W. Townsend), where it occurs in great abundance. The Andaman specimen, though not exactly typical, cannot be distinguished from it.

39. *SOLARIUM (PHILIPPIA) CINGULUM*, Kiener. A beautiful, fawn-coloured and white, variegated species, perfectly distinct from the allied *S. hybridum*, L., having its headquarters in the Sandwich Isles, and ranging throughout Polynesia.

40. *CONUS (CORONAXIS) HEBRÆUS*, L. One of the most widely distributed of the genus. Specimens from the Andaman Isles are quite normal.

<sup>1</sup> Mem. Manchester Soc., vol. xii (1897), No. 7, p. 11.

41. *CONUS* (*HERMES*) *SCABRIUSCULUS*, Chemn. Allied to *C. glans*, Swm. Reported from New Caledonia, and widely distributed throughout Polynesia.

42. *CYPRÆA* (*LUPONIA*) *HELVOLA*, L. Showing no variety. One of the most abundant Eastern cowries.

43. *CERITHIUM* (*VERTAGUS*) *OBELISCUS*, Brug. A beautiful form, straw-coloured, mottled with vivid grey at the sutures. Ranges throughout the Eastern tropics.

44. *CERITHIUM ROBUSTUM*, Sby. According to Tryon (*Man. Conch.*, ser. 1, vol. ix, p. 135), this is a variety of *C. Traillii*, Sby., which we have already recorded from these islands.

45. *TRIFORIS RUBER*, Hinds. One specimen, very richly coloured. Reported from Bourbon I. and Mauritius, to Tahiti and the New Hebrides.

46. *SCALARIA LATIFASCIATA*, Sby. A closely lamellate form, with broad spiral brown banding. Allied, perhaps too closely, to *S. Clementina*, Grateloup, of which *S. trifasciata*, De Haan, may be only a variety. It ranges from Mauritius to the Philippines.

47. *ONUSTUS INDICUS*, Reeve. Ranges throughout the Indian Ocean.

48. \* *XENOPHORA SOLARIOIDES*, Reeve. A small and very distinct species, whose headquarters are the Philippine Isles.

49. *MITRULARIA EQUESTRIS*, L., var. *DORMITORIA*, Reeve. One of the most variable of shells, and also one of the most widely distributed, occurring in both hemispheres in one or other of its forms.

50. *MITRULARIA TECTUM-SINENSE*, Lam. A concentrically laminated, conical species, perhaps not specifically separate from the foregoing, but less widely distributed, not having been recorded as yet from American shores.

51. *VANIKORO DESHAYESIANA*, Récluz. It may not be out of place here to state that *Vanikoro* (1832) of Quoy & Gaimard has precedence by nine years over the more familiar *Narica*, Récluz. The former name has been objected to as being barbarous, having been so christened after the Island of Vanikoro, where the original species (*V. cancellata*, Lam.) was discovered. Barbarous terms are not altogether forbidden, only discountenanced as much as possible by the rules of nomenclature, and for our own part we much prefer such a name to one which might be confusing, *Narica* and *Natica* only differing by a single letter. Anyhow, *Leucotis*, Swainson, 1840, has precedence by one year over *Narica*, while *Merria*, Gray, was not established until 1842.

52. *TURBO RADIATUS*, Gmel. Very fine specimens. Operculum shining, with a greenish tinge. Under this name Mr. Pilsbry (*Man. Conch.*, ser. 1, vol. x, p. 200) unites many of Kiener and Reeve's well-known species. The distribution is most extensive, ranging over the whole Indo-Pacific province.



53. *TROCHUS* (*LAMPROSTOMA*) *INCRASSATUS*, Lam. A common but variable Eastern species.

54. *TROCHUS* (*LAMPROSTOMA*) *PUSTULOSUS*, Phil. Seemingly a well-marked shell, but Pilsbry (*Man. Conch.*, ser. I, vol. xi, p. 30) with some doubt allies it to *T. calcaratus*, Souv., from New Caledonia.

55. *TROCHUS* (*TECTUS*) *OBELISCUS*, Gmel. More widely known as *T. pyramis*, Born (or Phil.). A very abundant species throughout the Eastern tropical area.

56. *MONODONTA LABIO*, L. Recorded from African, Indian, Chinese, and Japanese coasts, and not uncommonly in most of the Polynesian islands.

57. *CLANCULUS STIGMATARIUS*, A. Ad.

58. *CLANCULUS UNEDO*, A. Ad. This and the preceding species occur together. We defer to Pilsbry's acute differentiation (*Man. Conch.*, ser. I, vol. x, pp. 69-71) as regards their distinctness. The former has the wider distribution, the latter being almost confined to the New Caledonian Archipelago.

59. *PATELLA TESTUDINARIA*, L. A handsome *Patella*, which ranges from the Philippines southward.

60. *PATELLA OCLATA*, Meusch. Two examples. We consider this to be a somewhat obscure species.

61. *ACMÆA* (*PATELLOIDEA*) *SACCHARINA*, L. Fine examples. Not uncommon throughout the Eastern area.

62. *SIPHONARIA EXIGUA*, Sby. A large species, marked by many, radiating, white ribs. Its range is from the Philippines south-westward.

63. *PLACUNA PLACENTA*, L. This, the *Placenta orbicularis*, Retz, is especially frequent in Chinese waters.

64. *MELEAGRINA MARGARITIFERA*, L. Distributed throughout the Eastern region, in abundance.

65. *AMUSIUM PLEURONECTES*, L. China is its headquarters. It is the type of the genus *Amusium*, Bolten.

66. *TELLINA FOLIACEA*, L. Very fine examples of this beautiful species, which is distributed from the Philippines south-westward.

67. *MACTRA ANTIQUATA*, Spengler. Another fine mollusc, which has its headquarters in the Philippines.

68. *TAPES INDICA*, Hanley. Not infrequent on the shores of India proper (Abercrombie, Townsend, etc.).

69. *SILIQUA RADIATA*, L. A beautiful and common species. The Pelecypoda in the present collection are very insignificant in number and interest, as compared with the Gastropoda.

## SUMMARY.

The record for the Marine Molluscan Fauna of the Andaman Islands, as shown in our three papers, now stands as follows:—

No. I	...	...	...	97 species.
„ II	...	...	...	215 „
„ III	...	...	...	69 „
				381 „

The principal genera in the enumeration, when the number of species in each is computed, are *Mitra*, *Nassa*, and *Terebra*; these, with *Oliva*, were specially sought after by Mr. Booley, and no doubt many other interesting forms await the explorer, particularly among the more northern islands of the Andaman group, where, we are informed, hardly any collecting has yet been done. From the deep sea, however, beyond and around these coasts, and other parts of the Bay of Bengal, the “Investigator” dredging expedition has recently procured several new and wonderful abyssal forms, which are being worked out by Mr. Edgar Smith.

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